

APPENDIX BB - Exceptions to Design  
Standards

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Dist - Co - Rte, KP(PM)  
Source No. — E.A.  
Project Cost

## Fact Sheet Exceptions to Mandatory Design Standards

Prepared by:

\_\_\_\_\_  
Registered Civil Engineer



Submitted by \_\_\_\_\_  
(Name), Design Engineer                      Date                      Telephone

Recommended  
for Approval \_\_\_\_\_  
(Name), Project Manager                      Date                      Telephone

Concurrence by \_\_\_\_\_  
\* (Name), Branch Chief or DDC, Design                      Date                      Telephone

Approved by \_\_\_\_\_  
Project Development Coordinator for DLPP                      Date

\* Required if the Project Manager is not a Supervising T.E. or above.

## 1. PROPOSED PROJECT AND NONSTANDARD FEATURES

### A. Project Description:

Briefly describe the project; what is the proposal? Note the type of project and/or major elements of work to be done, such as safety or operational improvement, roadway widening, rehabilitation, reconstruction, etc. Provide the geographic project limits and length; i.e. "... On Route 12 in Sonoma County between Napa St. (KP 60.7, PM 37.7) and Napa Rd. (KP 62.3, PM 38.7)".

### B. Nonstandard Features:

Describe the proposed nonstandard feature or the existing nonstandard feature which is proposed to be maintained; if newly proposed, is the nonstandard feature an improvement over the existing condition?

### C. Standard for Which Exception Is Requested:

State the specific standards and refer to the applicable Chapter, Topic, or Index numbers of the *Highway Design Manual*.

### D. Existing Highway:

Describe the general highway characteristics, focusing on those features relevant to the proposed design exception, such as the widths of lanes, shoulders, median, roadbed, and structures; horizontal and vertical alignment and clearances; design speed, sight distance, grades, cross slope, superelevation, etc. Is the existing highway a part of the FHWA 42 000 km (26,000 mile) Priority Network?

If relevant, note structure clear width and the lane and shoulder widths across the structure; does the structure clear width match or exceed the approach roadbed width?

Note bridge-rail type; does it meet current standards for structural adequacy? Request this information from the Engineering Service Center Project Functional Manager assigned to your District.

Provide a similar, but brief, description of adjacent highway segments, highlighting existing nonstandard features when relevant to the proposed exception.

### E. Safety Improvements:

Describe proposed improvements that would qualify as safety enhancements, such as: median barrier, guardrail upgrade, flattening slopes, correcting superelevation, eliminating roadside obstructions, etc.

### F. Total Project Cost:

Include a good summary estimate of project cost segregated by major elements, including: roadway, structures, right of way, utility relocation, environmental mitigation, etc., as needed.

## 2. REASON FOR REQUESTING EXCEPTION

Be thorough, but brief; justification must be as complete and convincing as possible. Reasons exceptions have been granted in the past include a combination

of excessive cost, right of way impacts and/or environmental impacts. Supportive factors have included low accident frequency, local opposition, and consistency with adjacent highway segments.

A commitment to correct a nonstandard feature with a future project should not be made in the Fact Sheet unless absolutely necessary. If a commitment must be made, the follow-up project is to be programmed and Caltrans must have the authority to define the project's scope. Additionally, the follow-up project's status must be monitored in accordance with the procedures established by each district pursuant to the January 26, 1994, memo titled "FHWA/Caltrans Joint Review of Design Exceptions and Commitments". Provide a detailed account of the follow-up project in Section 7 (see below).

3. **ADDED COST TO MAKE STANDARD**

Summarize an estimate of the added cost above the proposed project cost which would be required to meet the design standard for which the exception is requested. The estimate does not have to be highly developed, but must be realistic.

Also, when the Fact Sheet covers multiple nonstandard features, provide separate cost summaries for the "standardization" of individual design features.

4. **TRAFFIC DATA**

Include both AADT's and design (peak period) hourly volumes. For 3R (i.e., rehabilitation) projects, use current year traffic. For all others, use design year traffic, usually 20 years after construction is complete. For interim projects that are to be superseded by programmed future construction, provide traffic data for both the ultimate programmed construction year and the ultimate project's design year.

5. **ACCIDENT ANALYSIS**

Traffic safety is of primary importance to both Design and Local Programs Program (DLPP) and FHWA when considering approval or rejection of design exceptions. To strengthen the justification for design exceptions, the Fact Sheet must include an analysis of accident data to identify prevalent accident types and causes, plus an evaluation of the effect of the requested design exceptions on accident types and frequencies.

Summarize an analysis of how the proposed project will help alleviate identified safety problems; or as a minimum, how it will not contribute to any increase. This analysis must be based on evaluation of TASAS Table B statistical data regarding both the number and severity of accidents as well as actual versus statewide average accident rates. For design exceptions related to spot locations (i.e., nonstandard vertical curve) on existing highways, analyze only the accident data within the vicinity of the feature. The analysis should also examine Table C data for high accident frequency spot locations, if any are within the proposed project limits.

TASAS data analysis should be supplemented by a review of district accident diagrams covering the project area in order to enhance the understanding of prevalent accident types and how they relate to existing and proposed highway design features. Provide the TASAS Table B summary of "actual" versus "expected" accidents; however, merely stating the "actual" versus "expected" numbers is insufficient.

In determining accident causes, keep in mind that although terms like "excessive speed", "inattention", "failure to yield right of way", "under the influence", etc., are

perfectly valid for the CHP, they have meaning for the highway engineer only as they relate to the underlying highway characteristics. Hence, the engineer must instead look for other reasons, such as: tight radius curves with inadequate superelevation, high-volume turning movements without separate turn lanes, a concentration of rear-end/side-swipe accidents in a particular lane, etc. In general, the accident concentrations detected in this manner are too small for a Table C printout, but collectively they are the key to understanding the vehicle-highway interactions that are the basic causes of accidents.

#### 6. INCREMENTAL IMPROVEMENTS

Discuss other practical alternatives that are intermediate in scope and cost between the proposed project (requiring this design exception) and the full, standard solution. For example, to justify retaining an existing horizontal curve with  $R=100$  m (300') when the standard minimum radius is 260 m (850'), the costs and impacts of an alternative which proposes a 175 m (550') radius curve (and possibly others) would need to be analyzed and discussed in this section.

Provide enough information on costs versus benefits, right of way and environmental impacts, etc., to explain why none of the incremental alternatives are recommended.

These alternatives should normally be investigated prior to requesting an exception.

#### 7. FUTURE CONSTRUCTION

Describe any planned future projects in the vicinity of the proposed design exception, but do not make a commitment to correct the nonstandard design features unless absolutely necessary (see Section 2). If a commitment must be made, describe the follow-up project's funding source (STIP, SHOPP, TSM) and schedule as listed in the appropriate programming document.

#### 8. PROJECT REVIEWS, CONCURRENCE


Note relevant project reviews by the HQ DLPP Project Development Coordinator and/or Geometric Reviewer, HQ Traffic Operations Liaison Engineer, and/or FHWA Transportation Engineer (if appropriate), etc. Provide the date of meeting or discussion, and state the individual's concurrence with the proposed design exception.

#### 9. ATTACHMENTS

- a. Provide location and/or vicinity map for the project. When the Fact Sheet covers multiple exceptions at various locations, a project strip map may be provided to indicate the general location of the various design exceptions.
- b. Provide cross sections and/or special details to clearly illustrate the proposed condition for each location that does not meet the mandatory standard for horizontal/vertical clearance and lane/shoulder/bridge clear width.
- c. Letters, resolutions, traffic study summaries, etc., which further develop or clarify the reasons discussed under Section 2 may be attached.

Do not attach superfluous materials, such as complete project plan sets or engineering reports unless specifically requested by the PD Coordinator or Geometric Reviewer.

## Vertical Clearance Design Exception on the 42 000 km Priority Network

<p>Prepared by:</p> <div style="text-align: center;"><p>REGISTERED PROFESSIONAL ENGINEER REGISTRANT'S NAME NUMBER Exp. (Date) BRANCH STATE OF CALIFORNIA</p></div> <p>_____ Registered Civil Engineer</p>	<p>Date</p> <p>_____ Dist.-Co.-Rte.-KP(PM)</p> <p>_____ Expenditure Authorization</p> <p>_____ Priority Network Segment Limits</p>
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1. Project Description and Estimated Cost:
2. Existing Condition (include discussion of adjacent segments) and Proposed Vertical Clearance(s):
3. Reason for Requesting Vertical Clearance Exception:
4. Additional Cost to Meet 4.9 m Vertical Clearance Standard:
5. Traffic Data:



6. Accident Analysis (related to existing vertical clearance):
  
  
  
  
  
  
7. Future Construction that Would Eliminate Restricted Vertical Clearance:
  
  
  
  
  
  
8. Alternative Routes Available (meeting 4.9 m Vertical Clearance)
  
  
  
  
  
  
9. Attachments:
  - a. Location Map
  - b. Vicinity Map (show alternative route if available)
  - c. Cross Section (showing minimum clearance location)
  - d. Photos or Special Details as needed

10. District Recommendations:

Submitted by	_____	_____	_____
	Design Engineer	Date	Telephone
Recommend for Approval	_____	_____	_____
	Project Manager	Date	Telephone

11. APPROVALS:

_____	_____
Project Development Coordinator (for DLPP Manager)	Date
Design and Local Programs Program State of California DOT	
_____	_____
FHWA	Date
_____	_____
Department of Defense	Date